

High vs Low Academic Achievement: What Difference Does Sleep Make? [Letter]

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Dear editor

I read with great interest the paper by Jalali et al¹ on the impact of sleep quality on the academic achievement of healthcare students at Kermanshah University. Healthcare disciplines and the subsequent career paths can be mentally and physically demanding therefore, sufficient sleep hygiene is essential to maximize overall health and function. Though the authors made a significant effort in ascertaining the possible relationship between these two important variables, certain limitations need addressing.

This cross-sectional study identified a sample of target students from each discipline using purposeful sampling with maximum variation. Based on the authors' predetermined GPA cut-offs, the three highest and three lowest achieving students from each cohort were recruited; it was hypothesised that students with higher GPAs would have better sleep quality than students with lower GPAs. However, the question arises whether the chosen sampling methodology was appropriate to test this hypothesis as creating groups restricted to polarised academic achievements could introduce sampling bias, which in turn reduces the internal validity of the study. It is also unclear how GPA cut-offs for the dichotomous high-low groups were decided and whether this was based on current literature, past cohort results or standardized university criteria. This information would have been useful to determine if there was widespread GPA variance across disciplines, eg, the lowest scores from one could be the highest in another; therefore, it would be difficult to retrospectively attribute the hypothesised trend to specific GPA values. An additional hypothesis addressing potential moderation effects of disciplines on the sleep–GPA relationship would have provided more insight.

To properly measure the potential correlation between sleep and academic achievement, future studies could explore the use of more liberal inclusion-exclusion criteria to permit the recruitment of participants of all GPA rankings. Such research design was utilised in a previous study² where bias probability was reduced by calculating the mean GPA of each participant using collated scores across semesters, and then categorising each student from the substantial sample size (n= 791) according to grade boundaries. This widens the scope to adequately evaluate the correlation between the two variables by highlighting any links between changes in sleep quality and grades.

The minimal exploration of confounders was another limitation. Evidence shows that factors, often associated with stress, such as technology overexposure,

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chronic illness, unstable family dynamics, and socioeconomic status (including finances and caring or parenting responsibilities) can lead to sleep disturbances and deprivation.^{3,4} I, therefore, suggest controlling for these confounders and other relevant factors to healthcare disciplines, such as course load and adjustment to clinical rotations, or making them covariates in an ANCOVA; this may improve result robustness and interestingly highlight if these are common influences amongst low achievers.

Despite finding no significant correlation, this study emphasized the need for implementing healthy sleep initiatives at university-level, to improve students' well-being and work performance. Future longitudinal studies, with larger more-inclusive sample sizes and more robust statistical considerations are required to provide further insight into whether addressing sleep issues in students will result in improved GPAs over time.

Disclosure

The author reports no conflicts of interest in this communication.

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